ABSTRACT

The present invention discloses antisense poly-2'-O-(2,4-dinitrophenyl) oligoribonucleotides which are capable of down regulating the expression of the RI_α subunit of protein kinase A. An example is 5'-GGCUGCGUGCCUCCUCACUGG (named antisense poly-DNP RNA-21) or a sequence which has a one-base mismatch therewith. The antisense oligoribonucleotide can be synthesized by in vitro transcription followed by chemical derivatization. The base sequence of the oligoribonucleotides is complementary to that of nt 110 to 130 in RI_α/PKA mRNA. The antisense poly-DNP RNA-21 was found to inhibit cell growth with IC_{50} values in the nanomolar range. These oligonucleotides can be used as effective anti-cancer agents.